

Deschampsia calyculata Presl

Botany of the U.S.
Exploring Expedition -
California, Oregon &
Washington Territory -

Gramineae
By G. Thurber

Recd. April 14th 1861 -

1.
Ord. Gramineæ.

1. Leersia, Soland.

1. Leersia oryzoides, Swartz.

Leersia oryzoides, Swartz, Fl. Ind. Occ. 1, p. 132; Nash,
Gram. 1, t. 35.

Hab. Sacramento &c. California.

2. Phalaris, Linn.

1. Phalaris intermedia, Bosc.

Phalaris intermedia, Bosc in Poi. Encycl. 1, p. 300.

P. microstachya, DC. Cat. 131; Trin. Icon. t. 77.

P. Americana, Ell. Sk. Bot. S. Am. & Geo. 1, p. 101.

P. angusta, Nees in Mart. Fl. Bras. 2, p. 391; Trin.
Icon. 7, t. 78.

P. trivialis, Trin. Phalarid. p. 10.

P. occidentalis, Nutt. Fr. arb. Ferr. p. 144.

P. Californica, Hook. & Arn. Bot. Beechey, p. 161.

Hab. San Francisco, California

2. Phalaris arundinacea, Linn.

Phalaris arundinacea, Linn. Sp. Pl. ed. 1, p. 88; Host, Gram. 2, t. 33;

P. Americana, Torr. Flor. 1, p. 100.

P. Japonica, Steud. Syn. Plant. Glum. 1, p. 11.

Dicranhis arundinacea, Trin. Fund. p. 127.

Hab. Sacramento, Spokane & Okanogan Rivers.

3. Phleum, Linn.

1. Phleum alpinum, Linn.

Phleum alpinum, Linn. Sp. Pl. p. 88; Host, Gram. 3, t. 10; Trin. Icon. 2, t. 21.

Hab. Cascade Mountains.

2. Phleum alpinum, var. tenue, Trin.

Phleum alpinum var. tenue, Trin. Ic. t. 22.

Hab. Wasqually.

4. Alopecurus, Linn.

1. Alopecurus geniculatus, Linn.

Alopecurus geniculatus, Linn. Spec. Pl. p. 89; Host, Gram. 2, p. 32; Trin. Icon. 4, t. 42.

A. julius, ~~Smith~~ Engl. Bot. t. 146.

A. aristulatus, Michx. Fl. 1, p. 43.

Hab. Spokane.

5. Hierochloa, Galetus.

1. Hierochloa borealis, Boem. + Schult.

Hierochloa borealis, Boem. + Schult. Syst. 2, p. 513.

H. repens, Beauv. Agrostid. p. 62.

H. arctica, Presl. Rel. Haenk. 1, p. 252.

Holcus repens, Host. Gram. 3, t. 3.

Hab. Sacramento, Casqually & Siskiyou River

In some of the specimens the radical leaves equal the culm.

6. Paspalum, Linn.

1. Paspalum distichum, Linn.

Paspalum distichum, Linn. Herb. (Fide. Munro.); Swartz.

Obs. p. 35, t. 2, f. 1; Trin. Icon. 10, t. 120.

P. notatum, Flügge, Monogr. p. 106; Trin. Icon. 10, t. 114.

Hab. Sacramento; found also in the Southern Atlantic States, Texas, Northern Mexico & Brazil.

7. Panicum, Linn.

1. Panicum agrostoides, Spreng.

Panicum agrostoides, Spreng. Pug. 2, p. 4; Trin. Icon. 22, t. 261.

P. agrostoidiforme, Lam. Ill. 1, p. 172.

Hab. Sacramento,

2. Panicum capillare, Linn.

Panicum capillare, Linn. Sp. Pl. p. 86; West. Gram. 4, t. 16, Fig.
200.

Hab. Sacramento.

3. Panicum capillare, var. major.

Panicula pauciradiata, radiis robustis solitariis vel
binis; spiculis sesquilinealibus, acuminatis, plerumque
trispicillatis.

Hab. Sacramento.

We have from numerous localities, west of the
Mississippi, specimens which, although they vary,
widely from the typical plant, we have referred
to P. capillare. We should consider the variety here
indicated as a distinct species did not intermediate
specimens connect it with ^{the} ordinary form. In the
same specimen there is a considerable difference
in the length of the lower glume. Habit & foliage as
in P. capillare.

4. Panicum pauciflorum, Ell?

Panicum pauciflorum, Ell. Sk. Bot. L. Cal. & Geo. 1, p. 120?; Gray,
Man. Ed. 2, p. 579.

Hab. Kanayan te.

Specimens from several localities occur in the collect-
ion, differing much in hairiness and size of panicle.
Were it not for the uniformly large size of the spikelets we
should refer them to the polymorphous P. dichotomum.

5. Panicum Crus-galli, Linn.

Panicum Crus-galli, Linn. Sp. Pl. p. 83; Host. Gram. 2, t. 19.

Echinochloa Crus-galli, Beauv. Agrost. p. 53.

Oplismenus Crus-galli, Kunth. Enum. 1, p. 143.

Hab. Sacramento.

8. Setaria, Beauv.

1. Setaria glauca, Beauv.

Setaria glauca, Beauv. Agrost. p. 53.

Panicum glaucum, Linn. Sp. Pl. p. 85; Host. Gram. 2, p. 16; Trin. Leon. 17, t. 195.

Hab. Sacramento.

9. Eriocoma, Nutt.

1. Eriocoma cuspidata, Nutt.

Eriocoma cuspidata, Nutt. Gen. 1, p. 40.

Stipa membranacea, Pursh, Fl. 2, p. 728.

S. hymenoides, Roem. & Schult. Syst. 2, p. 339.

Crachne lanata, Linn. Panic. p. 126.

Fendleria rynchelybroides, Steud. Syn. Plant. Glum. 1, p. 420.

Hab. North ranch of the Columbia.

10. Oryzopsis, Richard.

1. Oryzopsis exigua.

Panicula contracta; radiis solitariis binisve, erectis, subsecundis, unifloris; glumis obtusis, mucronatis, flosculis

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piloso paulo brevioribus; arista glumis subaequantibus;
antherarum loculis apice barbatis. *

Minutely puberulent throughout. Culm slender and wiry,
8-10 inches high. Leaves 2-3 inches long, narrow,
convolute, rigid and pungent; sheaths shorter than
the internodes; ligule rather exceeding a line in length,
lacerate at the apex. Panicle 1-1½ inch long; rays
mostly in pairs, one about equalling the flower, the other
twice its length. Glumes 2 lines long, obtuse and
mucronate, puberulent, ciliate at the apex, turning
purple with age, about one fourth shorter than the
floret, which has a very short rounded callus with a
few short hairs. Lower palea 1-nerved, clothed with scat-
tered hairs, minutely punctulate, bearing just below the
apex a slightly tortuous rather persistent awn about
its own length; upper palea as broad as the lower,
slightly exceeding it in length, faintly two-nerved and
strongly involute. Stamens 3, hairy at apex. Styles 3
(sempa?), elongated and exserted at the apex of the
floret. Squamulae 2, as long as the ovary, lanceolate,
inequilateral. In two florets three styles were distinct-
ly made out, the other specimens were too much
advanced to enable us to determine if this is a
constant character.

The species is most nearly allied to *O. canadensis*,
from which it differs in its simple & contracted
panicle & shorter glumes and awn.

* Hab. Cascade Mountains.

11. Stipa, Linn.

1. Stipa emirens, Cav.

Stipa emirens, Cav. Icon. 5, p. 42; t. 467, f. 1.

S. mucronata, H.B.K. 1, p. 103.

Hab. North Branch of the Columbia.
The panicle, only, of what appears to be this species.

2. Stipa viridula, Trin.

Stipa viridula, Trin. Act. Petrop. 1836; Trin. & Rupr. Stipac. p. 57.

S. parviflora, Nutt. Gen. 1, p. 59.

S. Nuttalliana, Steud. Nomencl. 2, p. 643.

Hab. Nargally, North branch of Columbia &c.

3. Stipa comata, Trin. & Rupr.

Stipa comata, Trin. & Rupr. Stipac. p. 75.

S. juncea, Nutt. Gen. 1, p. 58.

S. capillata, Hook. Fl. Bor.-am. 2, p. 237.

Hab. Okanagan & North Branch of Columbia.

4. Stipa occidentalis,

Panicula contracta, radiis inferioribus bi-triplematis
paucifloris, supremis solitariis unifloris; glumis lam-
ceolatis acuminatissimis; flosculis albo-pilosis
brevis coronatis glumis paullo brevioribus; aristis ligula-
ulatis inferne breviplumosa; antheris nudis.

Hab. North Branch of the Columbia & Kanagan.

Stems slender, 1-1½ foot high, purplish, minutely scabrous with slightly pubescent nodes. Leaves 4-5 inches long, filiform, scabrous; sheaths shorter than the internodes; ligule 2-3 lines long, lacinate at the apex. Panicle 3-4 inches long, rays mostly erect, the lower 1 inch long, 1-2, rarely 3-flowered. Spikelets short pedicelled. Lower glume 5-nerved, 5 lines long, the upper one somewhat shorter and indistinctly 3-nerved. Inferior palea 3 lines long, brownish at maturity, ~~hairy~~ hairy throughout, having a short but distinct corona and a minute white-bearded callus; superior valve ¾ the length of the other. Stem 1½ inch in length, mostly twice bent, plumose to the upper articulation with rather coarse hairs, the uppermost of which are much shorter than those near the flower.

The same species has since been collected by Doct. Nuttall on the Colorado of the West.

12. Aristida, Linn.

1. Aristida purpurea, Nutt.

Aristida purpurea, Nutt. Fl. Ark. Terr. p. 145.

A. aquiramea. Schult. in Linnaeus, 22, p. 343.

Hab. Walla Walla.

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13. Sporobolus, R. Brown.

1. Sporobolus cryptandrus, Gray.

Sporobolus cryptandrus, Gray, Man. Ed. 2, p. 542.

Agrostis cryptandra, Torr. in Ann. Lyc. N. Y. 1, p. 151.

Vilfa cryptandra, Trin. Agrostid. 1, p. 49.

V. Trincana, Steud. Syn. Plant. Glum. 1, p. 157.

Hab. With the preceding.

2. Sporobolus ramulosus, Kunth.

Sporobolus ramulosus, Kunth Gram. 1, p. 68.

Vilfa ramulosa, H. B. K. 1, p. 137, t. 684.

Agrostis ramulosa, Roem. & Schult. Syst. 2, p. 361.

A. minutissima, Steud. Syn. Plant. Glum. 1, p. 171.

Hab. Walla Walla.

The lower palea sometimes bears a minute mucro from the prolongation of the midnerve, a condition which is more frequently to be observed in the specimens from New Mexico.

14. Polypogon, Desf.

1. Polypogon fugax, Nees.

Polypogon fugax, Nees in Herb. Boyle; Steud. Syn. Plant. Glum. 1, p. 184.

Hab. San Francisco.

Trinius refers this to P. Monspelienensis, but it seems to be different from any specimens of that species that we have seen. Our specimens quite accord with Himalayan ones received from Munro as P. fuyaz.

15. Gastridium, Beauv.

1. Gastridium australe, Beauv.

Gastridium australe, Beauv. Agrost. t. 6, f. 6.

Milium lundigerum, Linn. Sp. Pl. p. 91.

Agrostis australis, Linn. Mant. 1, p. 30.

Hab. San Francisco.

16. Agrostis, Linn

1. Agrostis scabra, Willd.

Agrostis scabra, Willd. Spec. Pl. 1, p. 370.

A. laxiflora, Richards. App. p. 3.

A. Michauxii, Trin. Gram. uni- et sesquifl. p. 79. (pro parte)

Trichodium laxiflorum, Michx. Fl. 1, p. 42, t. 8.

Hab. Gray's Harbor.

2. Agrostis canina, Linn.

Agrostis canina, Linn. Sp. Pl. p. 92; Host. Gram. 4, t. 3.

Agraulus caninus, Beauv. Agrost. t. 4, f. 7.

Hab. Near the mouth of the Spokane.

3. Agrostis exarata, Trin.

Agrostis exarata, Trin. Gram. uni- et sesquifl. p. 267 & Leon. 3, t. 27.

A. asperifolia, Trin. Agrostid. 2, p. 71.

A. pallens, Trin. Agrostid. 2, p. 82.

A. Schildeana, Trin. Agrostid. 2, p. 81.

Hab. Numerous localities in California and northward.

This seems to be a very variable species as to size and foliage as well as in the character of the flower. The upper palea is frequently obsolete, and the lower awned or awnless. The synonymy given above is from some copious manuscript notes kindly furnished by Munro.

17. Calamagrostis, Adams.

1. Calamagrostis Canadensis, Beauv.

Calamagrostis Canadensis, Beauv. Agrost.

C. Mexicana, Nutt. Gen. 1, p. 46.

Arundo Canadensis, Michx. Fl. 1, p. 73.

Hab. Spokane.

2. Calamagrostis Aleutica, Trin.

Calamagrostis Aleutica, Trin. in Bong. Veg. Sitcha p. 71.

Hab. Gray's Harbor.

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The specimens, which are somewhat doubtfully referred to this species, have very stout culms three feet high, The axis and rays of the panicle and base of the glumes are of a blackish purple color; the upper portion of the glumes brownish. The very delicate awn is inserted above the middle of the palea and about equals it while the rudiment and the hairs of the callus are less than half its length.

18. Phragmites, Trin.

1. Phragmites communis, Trin.

Phragmites communis, Trin. Fand. p. 134.

Arundo Phragmites, Trin. Sp. Pl. p. 120; Beauv. Agrost. t. 12, f. 2.

Hab. Sacramento and Puget's Sound.

19. Spartina, Schreb.

1. Spartina gracilis, Trin.

Spartina gracilis, Trin. Agrostid. 1, p. 88.

Hab. Okanagan.

2. Spartina stricta, var. foliosa.

Spartina foliosa, Trin. Agrostid. 1, p. 92.

Hab. San Francisco.

This is doubtless the plant described by Trinius and is only a form of the variable S. stricta with the leaves crowded at the top of the culm and equalling or exceeding the panicle.

20. Aira, Guin.

1. Aira danthonioides, Trin.

Aira danthonioides, Trin. in Act. Bot. 1830, 1, p. 57. + Icon. t. 257.

Deschampsia danthonioides, Munro in Benth. Plant. Hartweg. p. 342.

S. calycina, Presl Rel. Huenk. 1. p.

Hab. Spiken River and North branch of the Columbia.

2. Aira elongata, Hook.

Aira elongata, Hook. Flor. Bor.-Am. 2, p. 243, t. 228.

Deschampsia elongata, Munro in Benth. Plant. Hartweg. p. 342.

Hab. Gray's Harbor, Nasqually, etc.

The specimens are from a number of localities and vary in height from a few inches to two feet.

The hairy abortive pedicel is frequently as long as the floret below it.

3. Aira cespitosa, var. longiflora, Trin.

Aira ~~longiflora~~ cespitosa, var. longiflora, Trin. in Herb. Torr.

Hab. Nasqually and North branch of the Columbia.

Some of the specimens are four or five feet tall
with the large panicle of a fine bronze color;
they quite agree with authentic ones from Trinius.

21. Trisetum, Persoon.

1. Trisetum subspicatum, Beauv.

Trisetum subspicatum, Beauv. Agrost. p. 88.

T. airoides, Roem. & Schult. Syst. 2, p. 266.

Aira subspicata, Linn. Syst. Veg. 2. 2, p. 91.

Hab. Cascade Mountains, West side,

2. Trisetum cernuum, Trin.

Trisetum cernuum, Trin. in Act. Petrop. 1830, 1, p. 161.

Arena cernua, Kunth, Enum. 1, p. 306.

Hab. East side of Cascade Mountains,

22. Arena, Linn.

1. Arena fatua, Linn.

Arena fatua, Linn. Sp. Plant. p. 118; Host. Gram. 2, t. 58.

Hab. Sacramento. Introduced.

23. Danthonia, DC.

1. Danthonia spicata, Beauv.

Danthonia spicata, Beauv. Agrost. p. 92, t. 18, f. 7; Trin. Icon. 5, t. 54.

Hab. Near the mouth of the Spokan.

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2. Santhonia spicata, var. monostachya.

Hab. Spoken River and The North Branch of the Columbia.

A reduced state of S. spicata in which the culms are about six inches high, clothed with crowded sheaths and bearing a single terminal spikelet. The sheaths are hirsute with long spreading hairs, and the leaves, which exceed the reduced panicle are more or less hairy.

24. Poa, Scum.

1. Poa annua, Scum.

Poa annua, Scum, Sp. Pl. p. 89; Hist. Gram. 2, p. 64.

Hab. Nasqually.

2. Poa abbreviata, R. Brown.

Poa abbreviata, R. Brown in Parry's 1st Voy. App. p. cclxxxvii and cccix.

Hab. Puget Sound, Port Discovery and Nasqually.

3. Poa nemoralis, Scum.

Poa nemoralis, Scum. Spec. Pl. p. 102.

Hab. Cascade Mountains, Spoken, Port Discovery etc.

We have included under this species a number of forms

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Some of which have doubtless been described as distinct species, but we are at present unable to separate them.

25. Eragrostis, Beauv.

1. Eragrostis reptans, Nees.

Eragrostis reptans, Nees in Mart. Fl. Bras. 2, p. 514.

Poa reptans, Michx. Fl. 1, p. 69, t. 11.

P. hypnoides, Lam. Ill. p. 185.

P. carinata, Poir. Encyc. 5, p. 86.

P. capitata, Nutt. Fl. Ark. Terr. p. 146.

Megastachya reptans & hypnoides, Beauv. Agrost. p. 186.

Hab. Sacramento.

2. Eragrostis alba, Presl.

Eragrostis alba, Presl, Rel. Haenk. 1, p. 279.

Hab. Sacramento.

In the old plant the spikelets have from ten to fifteen florets. The lower palea generally bears a very minute mucro which is sometimes present and wanting in florets of the same spikelet.

26. Brizopyrum, Link.

1. Brizopyrum spicatum, Hook. & Arn.

Brizopyrum spicatum, Hook & Arn. Bot. Beechey, p. 403.

B. boreale, Presl. Rel. Haenk. 1, p. 280.

Uniola spicata, Scribn. Sp. Pl. p. 104.

U. distichophylla, Roem. & Schult. Syst. 2, p. 596.

Festuca distichophylla, Michx. Fl. 1, p. 67.

Poa Michauxii, Kunth Gram. 1, p. 111 & 2, p. 533, t. 181.

Hab. San Francisco and Brays Harbor.

2. Brizopyrum spicatum, var. strictum.

Uniola stricta, Torr. in Ann. Lyeo. N.Y. 1, p. 155 & in Marcy's Rep. t. 20.

U. multiflora, Nutt. Fl. Ark. Terr. p. 148.

Hab. Sacramento and Nasqually.

In some of the specimens from the latter locality the ~~culm~~ summit of the culm, probably from being injured by insects, is developed in a curious manner so as, at first sight, to resemble the spikes of some Chlorideous grass.

27. Glyceria, R. Brown.

1. Glyceria nervata, Trin.

Glyceria nervata, Trin. in Act. Petrop. Ser. 6, 1, p. 365.

G. Michauxii, Kunth Gram. 1, p. 118, & 2, p. 343, t. 85.

Poa nervata, Willd. Sp. Pl. 1, p. 389.

P. stricta, Michx. Fl. 1, p. 69.

P. parviflora, Pursh, Fl. 1, p. 80.

Hab. Spokane and Grays Harbor.

2. Glyceria pallida, Trin.

Glyceria pallida, Trin. in Act. Bot. 1836, p. 57.

Trivodia pallida, Spreng. n. ~~Entod.~~ Entd. 1, p. 246.

Windsoria pallida, Torr. Cat. Pl. N. York, p. 92.

Poa dentata, Torr. Fl. 1, p. 107.

Uralespis? pallida, Kunth Gram. 1, p. 108.

Hab. Nulla Nulla.

3. Glyceria Nuttalliana.

Poa airoides, Nutt, Gen. 1, p. 68.

P. Nuttalliana, Roem. & Schult. Mant. 2, p. 303.

Festuca? Nuttalliana, Kunth Gram. 1, p. 129.

Hab. Kasqually.

4. Glyceria vultosa.

Culmo basi vultoso; panicula radiis 2-3-natis inaequalibus paucifloris; spiculis brevipedicellatis 4-6-floris, flore superiore imperfecto; glumis obtusis inferiore uninervia, superiore quinquenervia duplo majore; paleis subaequalibus inferiore septemnervia rugosa, superiore apice truncata, carinis ciliatis

Hab. Cascade Mountains,

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Culms about a foot high, slender, erect from a bulbous base, clothed below with scarious sheaths, strongly striate, retroresely pubescent. Leaves 4-5 inches long, 1-1½ line wide, flat, erect, somewhat rigid, pilose pubescent especially on the under surface and near the base; sheaths longer than the internodes, closed, loose, striate and pubescent; ligule over a line in length, lacerate dentate at the apex. Panicle 4-6 inches long; rays remote, angled; the lower 2-3-nate with one much the longest and several flowered; upper rays solitary and very short. Spikelets short pedicelled, 5-6 lines long, mostly 6-flowered, the florets distant upon a soft flexuous rachis. Glumes unequal, obtuse, the lower 1-nerved and about half the length of the upper one which is scabrous on the mid-nerve and equals the lower floret. Paleae nearly equal, the lower obtuse entire at the scarious apex, very convex on the back, strongly 7-nerved, minutely scabrous throughout; the upper one very broad, the strong nerves ciliate, truncate, entire at the apex. Synamulae completely united, truncate, somewhat fleshy, half as long as the ovary. Stamens three. Ovary slightly stipitate, styles two, long and slender above, divergent at the thickened bases which when the upper portion falls away are left as horns to the ovary; stigmas with copious branching hairs.

5. Glyceria angustata.

Poa angustata, R. Brown in Parry's 1st Voy. App. ccxxxvii + cccix.

P. phryganodes, Trin. in Act. Botrop. Ser. 6, 1, p. 389.

P. Nutkaensis, Presl Rel. Haenk. 1, p. 272.

Atropis angustata, Griesb. in Ledeb. Fl. Ross. 4, p. 390.

Hab.

28. Sclerochloa, Beauv.

1. Sclerochloa Californica, Munro.

Sclerochloa Californica, Munro in Benth. Plant. Hartweg. p. 342.

Eragrostis Fendleri, Steud. Syn. Plant. Glum. 1, p. 278.

Hab. Port Discovery.

29. Loophoclaena, Nees.

1. Loophoclaena Californica, Nees.

Loophoclaena Californica, Nees in Zeyl. Ann. Nat. Hist. 1, p. 283.

Hook. & Arn. Bot. Beechey, p. 403, t. 95.

Pleurapogon Douglasii, Trin. in Steud. Syn. Plant. Glum. 1, p. 292.

Hab. Cascade Mountains.

This seems to be a very rare plant, a solitary specimen only was collected.

29 ~~30~~. Melica, Linn.

1. Melica poaeoides, Nutt.

Melica poaeoides, Nutt. Plant. Gamb. p. 188; Torr. in Whipp. p. 157
M. bulbosa, Geyer in Hook. New Gard. Misc + Jour. Bot. 8. p. 19,

Hab. North branch of The Columbia.

The enlargement at the base of the culm seems to have escaped the notice of Nuttall and others who have collected the plant in California. Nuttall describes the spikelets as bearing only two perfect flowers; we more frequently find three or four. The veins of the glumes and paleae anastomose towards the apex, as they do in some other species of this genus. Lower palea three lines long and in the old plant splitting at the apex. Fruit with a solitary pericarp.

30. Koeleria, Persoon.

1. Koeleria cristata, Pers.

Koeleria cristata, Pers. Syn. 1, p. 97.

K. nitida, Nutt. Gen. 1, p. 74.

Aira cristata, Linn. Sp. Pl. p. 94.

Hab. Kasqually, Okanogan and numerous other localities.

31. Festuca Linn.

1. Festuca Myurus, Linn.

Festuca Myurus, Linn. Sp. Pl. p. 109; Host. Gram. 2, t. 93.

Hab. San Francisco.

2. Festuca microstachya, Nutt.

Festuca microstachya, Nutt. Plant. Gamb. p. 187; Torr. in Whipp. Rep. p. 156.
Vulpia microstachys, Munro in Benth. Plant. Hartweg. p. 342.

Hab. Nasqually, North branch of the Columbia &c.

The collection contains a great variety of forms, some of which quite agree with Nuttall's original specimens while others differ from them greatly in size and aspect as is noticed by Torrey in the Botany of Whipple's Report. Nuttall in his description has inadvertently stated that it is the ^{lower} ~~upper~~ glume that is three-nerved instead of the upper one.

3. Festuca ovina, var. duriuscula, Gray

Festuca ovina, var. duriuscula, Gray Man. Ed. 2. p. 566.
F. duriuscula, Levin. Sp. Pl. p. 108; Host. Gram. 2. t. 83.

Hab. Spokane, North branch of the Columbia etc.

4. Festuca pauciflora, Thunb.

Festuca pauciflora, Thunb. Fl. Jap. p. 52.
F. occidentalis, Hook. Fl. Bor.-Am. 2, p. 249.
F. parvigluma, Steud. Syn. Plant. Glum. 1, p. 305.
F. remotiflora, Steud. l.c. p. 315.

Hab. Nasqually and Cascade Mountains.

Some of the specimens quite agree with the F. occident-

alis of Hooker while others have somewhat longer glumes. The synonymy given upon the authority of Munro.

32 ~~33~~. Bromus, Scribn.

1. Bromus carinatus, Hook & Arn.

Bromus carinatus, Hook & Arn. Bot. Beechey p. 403.

Hab. Mesqually.

2. Bromus breviaristatus,

Geratocloa breviaristata, Hook. Fl. Bor.-Am. 2, p. 253, t. 234.

Hab. Mesqually.

This, as Hooker remarks, is very near B. unioides, but the specimens, as well as one from the original stock, in Herb. Torr. are ⁱⁿ too imperfect a state for satisfactory comparison.

3. Bromus Hookerianus,

Geratocloa grandiflora, Hook. Fl. Bor.-Am. 2, p. 253, t. 235.

Hab. Willamette, Walla Walla &c.

33 ~~34~~. Triticum, Scribn.

1. Triticum repens, Scribn.

Triticum repens, Scribn. Sp. Pl. p. 128; Host. Gram. 2, t. 21.

Hab. San Francisco, Walla Walla, &c.

35. Elymus, Scinn.

1. Elymus Sibiricus, Scinn.

Elymus Sibiricus, Scinn. Sp. Pl. p. 123.

E. villosus (P. globosusculus, Torr. in Bot. Whipp. Rep. p. 157).

Hab. Satchap and Spokane Rivers.

2. Elymus Canadensis, Scinn.

Elymus Canadensis, Scinn. Sp. Pl. p. 123.

Hab. Walla Walla.

3. Elymus arenarius, Scinn.

Elymus arenarius, Scinn. Sp. Pl. p. 122.

Hab. Port Discovery.

4. Elymus mollis, Trin.

Elymus mollis, Trin. in Spreng. n. Endt. 2, p. 72.

Hab. Port Discovery and Puget Sound.

5. Elymus dasystachys, Trin.

Elymus dasystachys, Trin. in Ledeb. M. 1, 245.

E. mollis, R. Brown in Frankl. Journ. vol. 2, App. p. 3.

Hab. Walla Walla.

6. Elymus condensatus, Presl.

Elymus condensatus, Presl. Rel. Haenke, 1, p. 265.

Hab. North Branch of The Columbia.

36. Hordeum, Linn

1. Hordeum pratense, Huds.

Hordeum pratense, Huds. Angl. p. 56; Engl. Bot. t. 409.
H. adscendens, H. B. K. 1, p. 180.

Hab. Gray's Harbor and Rukaski.

37. Sitanion, Raf.

1. Sitanion Elymoides, Raf.

Sitanion Elymoides, Raf. in Journ. de Phys. 89. p. 103.

Aegilops hystrix, Nutt. Gen. 1, p. 86.

Elymus? Sitanion, Roem & Schult. Mant. 2, p. 426.

Polyanthus hystrix, Presl in Engl. Ann. Nat. Hist. 1, p. 284.

Elymus v. nov. gen. For. in Nicolle's Rep. p. 165.

Hab. Sacramento, North branch of The Columbia &c.

The specimens vary very much in the length of the awns, and in some the leaves & sheaths are very ~~soft~~ hispid with soft hairs.

Herms from Govt. Chap. Mann Feb. 66.

Amphicarpum *Floridanum* Chap.

Cenchrus behrii L. Chap. Fl. ?
cf. *C. hyemalis*.

Paspalum procerum Walt.

P. distichum L.
P. vaginatum Chap. Fl.

P. notatum Kluge ?
P. distichum Chap. Fl. ?

P. walteri Sch.

Panicum colonum L.
P. walteri Sch.

P. digitum L. ?
P. Curtisii Chap.

P. gymnospermum Walt.

P. mucronatum Walt.

P. rufum Rth. ?

P. chaetium var. *puberulum*

P. anceps L. ?

P. virgatum var. *puberulum*

P. viscidum L.

P. scoparium ?

186

Wm. H. H. H.

401 BROADWAY

CRIMLINE SPRINGS

WASHBURN & MOEN'S CELEBRATED

Sole Agents for

SKIRT & CORSET MANUFACTURERS

J. B. O. J. H. H.

OFFICE OF

Young's Green

Diagram 50 - 11

Des Bonnet & Huber Gousses

Panicum Graminace

Ris. Verde - 464

Panicum obtusum HBK.

Ris. Verde - 490

Panicum termitum

Ris. Verde - 479

Panicum capillare

34 - 405

Ectocarpus

pl. 5.

406

498 - *Eractus ciliatus* L.
549 - *Anthephora elegans*.

55 - *Panicum (orthogon) tortile* - 2 fls.
+ = *P. Bormanianum* Trin -

592 + 592' may be forms of *Setaria*
candata Rob. - or *S. setosa* Beauv. - if in
fact there are not the same -

675 - *Panicum decuratum* L.

3811 - ——— fringed but the fls in
the spike are all 3-merous!

734 *Eriostyloctenium Egyptianum* L -

581 *Leptocoma mucronata* Kth -

739 very variable plant as to foliage -

639 { *Bouteloua Humboldtiana* Greene

656 } *Eriocoma pinnatifidum* Kth -

740 - *Bouteloua*
= *Eriocoma pinnatifidum* Hooker?

601 - *Aristida purpurascens* -
= slender Florida spec -

59 - *Eractus* -
near *E. pinnatifidus* but 2 an
not able to name it just now

20 *Eractus ciliatus* L. -

640 - ——— *Oxylophus* var
intermediate with young

103 *A. orthogon macrantherus* var
var *concolorum* Chapm.

Plate XL

Engraving of the
design of the church by H. L. ...

XL

Engraving of the church by H. L. ...
design of the church by H. L. ...

P.S.

Am just down from Stratham, N. Hampshire.
Came across a mowing lot there with large
patches of some red looking grass
(cut down) that I did not recognize.
Does the Phalaris ever make a
misance of itself in that way?

Did you wish this lot of *M. rhomboides*? you
do not say. S.W.

Special Enquiries to Mr. Watson -

anthracanthum - Has any one yet noticed
this as an introduced plant in California?
In Cal. Cal. only.

Hieracium borealis - Oregon & Wash. terr -

" *alpinum* - N. Pacific slope. Defect -

I doubt either of them be described? I have
not respectively the plants in probably, and I doubt.

Alopecurus geniculatus, Oregon & boundary.

caespitosus "

Are these near enough to *caespitosus*?
I doubt the *caespitosus* is *caespitosus*.

Paspalum 790, California, southern - This

occurs in both herb. grass & herb. terr - Is
there any clue as to what part of
California this came from? - No one
else appears to have found it and I
much doubt if it came from there.

Setaria candelata - "Long Valley and
the Des. sp. in "Long Valley and
Imperial Basin" - does this come into
the state? Yes - not to the south.

California, Pallogy in Soc. an. Ind.

P. 7. I have not this either
specimen or des. - Bolander has not
taken it up in his list made for the
State Soc. - If he has, is it
any, please say it.

I have not this either
specimen or des. - Bolander has not
taken it up in his list made for the
State Soc. - If he has, is it
any, please say it.

I have not this either
specimen or des. - Bolander has not
taken it up in his list made for the
State Soc. - If he has, is it
any, please say it.

Cumulus will show itself in the
thin shape no more of it. May as well
so.

And you know it, don't you?

And you know it, don't you?

The Cumulus is in
of Palmer is the one in the Gulf
of sub. and outside of our range.

About the use of numerals.

They are generally employed
through the U.S. Calif., as readily
catching the eye & saving space,
— without dash for connective
i.e. 4 to 6, or 4 or 5, not 4-6 or.

I follow Dr. Gray pretty closely in
his ~~use of~~ use of colons & semi-
colons — but you need not bother
about that. I will see that it is
made right for the printer
before he gets it.

had got laid away and came near not
getting to you.

Yours very truly
Annals Watson

Homocidus albica, Lindl.

Your MS. does very well indeed & I see
no special need for criticism or
suggestion. I think you may be
trusted to follow your own
determination of Green's grass not
needed except for the Vorany. It

Aristida

Cromoides "like O"
Milliers Fork - Palmer 542 -

11. ? -

Coulter No 768 -

Tr. has not any Aristida / ar. structure
California nor "a. dispersa?"

Colcanthus subtilis

Joseph Howell,
Sausalito -
Oregon -

Alopecurus aristulatus -

Emp. in Art. Nevada - Torr. 540

Diana 6006 - G. L. Benson -

* Oregon (Herb. Gray)

Alopec. catopictus Tr. - (11)

Oregon - B. B. Brown, Lyall
Herb. Gray

Alopec. pratensis - "slender form"

Oregon - Hall 611

Hartweg 2026 -

Villemia alpestris -

Oregon - Hall - 600 -

Calif. - 37 miles - 307 -

S. ... Fri. -
39° ...
Col. - ...

S. ... Fri. -
Lake - ... 575.
... 73 - 1104-8

Stipa sp.
Bony Lake, ... 579 - ... Col, ...

Stipa ...
... 4000 ft! (1872)

" ..."
(1872)

2128 ...

...
... 3020 -
... 625 -

S. ...
Pasture ...
Lake ... (mid ...)

Pan Scapanus - Cascad. Mts. - Lowell -
672 - Hall - Oregon

Antrophora Elegans (P. in Ant.)

Ceph. St. Lucas, Anatomical,

Xanthus - Smith -

[Hesperia, Miller's G. Mill. Bot Zeit. 1867, p. 344
Anthon Sep. Hall 824

Also. 2087. 449. 654 Wright 1811 Red Gray -

Heloporus pinnatus, G. Mill. -

Is. Top 200 - ^{5th} Lindberg C. Wright 471 791 -

Platycodon - C. G. Phasus H. Sted

" " " " " " " " " " " "

Lindberg, 723-722

gray parts in
Eriochloa rubra

Also - Berkeland
"Fam. Tephrosia"

C. G. Phasus, C. G. Phasus

var. Panaphysus - Zett. -

Ceph. St. Lucas - Xanthus, 115

Panaphysus - Zett. - C. G. Phasus

Is. - Palmer - 111

Notes Herb Gray

Hervochton Alpin. B & S =

2 Pacific Expt. Ex -

Arakambchutoten

H. borealis - Alaska - Dull

H. borealis Herb. Gray - 786 (or 4) Coulter -
Cal is = H. macrophylla, Thunb

Ruspealium -

790 Coulter

Panicum

P. Colomina, San Diego Co. Palmer - 419 -

Stigotum - much l. glauc - Cal. Coulter - no num. -
ben -

Panicum 75 Sept 1 - no 385 - Panicum? - lites
P. capillare

P. dichotomum, 2024 Hartney -

" Oregon Boundary, Cascade Mts., form -
" P. pubescens Lam. -

" Sierra Co. Cal. Beaman 682.

" Oregon - 671 Burt.

" Cal. - 365 - Bridges

" Cal. - 365 - Bridges

Note given me Watson

A. *ternipes* Cav. ? . Outs

I find a couple of spikelets
marked: "San Diego Cal. 401 Palmer '75"
probably cribbed from Herb. Gray -
I find that so far as just these
two flowers go, they are closely
like *Blutris* solitary specimen.
I would not have included *Blutris*'s
unique, had not this of Palmer
turned up - was his also a uniqueness?
- If he collected much of it was
it distributed? - Tell me what
to do with the thing.

Ulla tricholepis.
A solitary fragment is marked
For. Locality unknown. Cal." as this species has
not (otherwise) been known in Cal. or far west
of Rocky Mts. this must be an error.

A. tenuipes, Cav.? Culm apparently
tall; panicle about a foot long,
narrow, with appressed rays; glumes
nearly equal, four or five lines long,
the lower slightly shorter, both cus-
pidate; floret equalling or a very
little longer than the glumes, hairy
at base; lateral ~~setae~~ ^{anthers} ~~setae~~, about
as long as the floret, the central
one slightly longer, equally spread-
ing. Cav. Trin & Rupr. Stipaceae, p. 123.
A. Humboldtiana, Torr in Pacif. R. R.

Report, V, p. 366.

Head of Tulare Valley, Blake. San
Diego Co. Cal. Palmer (4901.)

A single weather worn specimen, collect-
ed by Mr. Blake was doubtfully referred
by Doct. Torrey to A. Humboldtiana, ^{min. Prop.} the
same specimen was seen by Gen. Munro,
who thought it more like A. tenuipes
Cav. It was probably introduced
from South America. Doct. Palmer
collected what appears to be the same
in San Diego Co.

Aristida

culm apparently full, glaucous, sheaths
smooth, pubes at throat. Panicle
erect, pyramidal about 1 foot long.
Branches solitary or in pairs when
they are united below. Branching ~~above~~
the middle. Branches appressed, about
6 flowered. Glumes slightly unequal,
the lower about 4 lines long. The upper
1/2 a line longer, cuspidate. Flower
slightly exceeding the glumes. Lateral
setae equalling the flower. The central
slightly longer, equally spreading. ~~Straw~~

Mead of Tulare Valley, California Jan.
Blake.

I suspect that this may be an
introduced plant, probably from
Mexico or South American
Cf. A. Humboldtiana Brit & Pursh.

Tilfa cuspidata[?], Forr. is a
Muhlenbergia rather than a tilfa
as its ^{manifest} ^{callus} acute plumes, and distinctly
3-nerved and short-armed ~~upper~~
lower palat are all opposed to
the generic characters.

Culms 1 to 2

feet high, sometimes sparingly branched, very slender and forming tufts; leaves smooth, all very narrow involute and setaceous, at least above, the radical ones about half equalling the culm, the leaves on which are shorter - 1 to 2 inches long, erect; ligule very minute; sheaths mostly shorter than the internodes, loose, smooth; panicle 2 to 3 inches long, very narrow, interrupted, exserted, rays mostly in pairs, flower-bearing their whole length; spikelets $1\frac{1}{2}$ to 2 lines long; glumes nearly equal, acuminate pointed $\frac{1}{3}$ to $\frac{1}{2}$ shorter than the floret; lower palea acute, 3-nerved the central nerve excurrent beyond the somewhat bifid apex as a nerve less than half a line long; minute hairs on the nerves, especially below, upper slightly shorter, both pale green with blackish blotches. For. in Hook. Flor. Bor. Am. 2, 237; Gray, Man. 28.

5. 609.

Oregon & British America, Nebraska and eastward. Though not yet found within the limits of the state, it is very likely to occur.

Perennial.

Turns somewhat as to relative lengths of glumes & floret; the leaves in some species below and involute above.

M.

Culm erect from a perennial (?) root, about 1-foot high, scabrous near the panicle and pubescent below the nodes, otherwise smooth; leaves long and about 1-line wide, strongly pubescent on the upper surface, nearly smooth beneath, rough on the margins, the uppermost reduced to a loose sheath without blade; ligule a hairy fringe; sheaths loose, smooth or minutely & sparsely pubescent between the strias; panicle about 4 inches long loose and open, two-flowered; rays in pairs and similarly subdivided above the middle, with their divisions much flattened and 2-edged or, with the axis, 3-edged, all strongly ciliate-fringed on the outer angles, somewhat erect (?); spikelets (exclusive of awn) 3 lines long with pedicels mostly much longer and with all parts of the panicle, pale yellowish green; glumes herbaceous with hyaline margins, lanceolate, acute or somewhat acuminate, ciliate on the keel, especially above, the upper one third the longer and barely equalling the floret, its lateral nerves obsolete towards the apex; floret lanceolate, upon a distinct, rounded, smooth callus, accompanied by a conspicuous rudiment of a second flower; lower palea of firmer texture than the

glumes, scabrous-pubescent, green, terminated by a rather stout, rough awn nearly half its own length and inserted at or very slightly below the apex; upper palea similar in texture and pubescence to the lower and quite encircling it, with two strong nerves which are excurrent at the very pubescent apex as more or less manifest teeth, strongly infolded between the nerves to form a channel that contains the pedicel which is $\frac{1}{3}$ its length, scabrous and bearing a rudiment; this consists of a manifest but undeveloped palea with an awn reaching to the top of the floret or is reduced to a small awn with indistinct scales at its base and, with its pedicel, not half that length; scales minute, orate-acuminate inequilateral; stamens. styles orange slightly stipitate(?) and crowned with minute hairs at top; grain

Barry.

Quidnuncus Barryi, Wats.

70. 3. 1

Panicle a simple slender spike.
 Spikelets solitary and sessile or in pairs with one short pedicellate, on alternate sides of the flattened, ^{or} ex-
 carated rachis, 1-flowered with a rudiment of a second flower, with the rachis, smooth, three lines or less long. Glumes much compressed, coriaceous herbaceous, thin on the margins, the lower 5-nerved, the upper narrower and slightly shorter, 3-nerved. Floret included, slightly shorter than the glumes, with a minute callus. Lower palea somewhat coriaceous, indistinctly 5-nerved exserted the mid-nerve which is strong and excurrent as an awn at the minute by 2-toothed apex, bearded at the base with short unequal stiff hairs. Upper palea equalling the lower. Rudiment plumose and very minute. Stamens Scales.
 Ovary. Styles. Caryopsis terete with a large scutellum.

Annual. with the aspect of hurdus and the flowers of a Calamagrostis.

Culm from an annual root, including spike from 2 to 5 inches high with a few branches from base, smooth, slightly striate and marked with very minute dark purple lines; leaves, two or three, 3 to 6 lines long and not over a line wide, convolute, mucronulate at apex, smooth; ligule long for the size of the plant, 1 to 1 1/2 line, ~~long~~, ovate-acuminate, strongly ~~be-~~current; sheaths longer than internodes, loose, striate, smooth, scarious margined; ^{spike} ~~panicle~~ 1 to 2 inches long, very narrow, ^{often} slightly recurved at apex and, with the rest of the plant, purple, smooth, alternately ex-nerved or flattened; spikelets 2 to 3 lines long, either single and sessile or in pairs, one sessile and the other on a stout grooved pedicel half its own length; glumes thick (coriaceous herbaceous) on the back, very thin or scarious on the margins, purple where exposed and punctate late dotted between the nerves, the dots more or less in two rows, the lower 5-nerved, the upper and slightly shorter 3- or (by suppression) 2-nerved, the floret about 1/2 line shorter than the lower glume; lower palea 5-nerved, the ~~lateral~~ ^{extra lateral} nerves nearly obsolete, shining and smooth below except on the mid-nerve, scarious above, where it is often tinged with purple, terminating in two rather irregular teeth and bearing a straight and slender, exserted awn of one half to nearly its ^{own} length.

Surrounded at base, especially at ¹²point
and sides, by unequal, not very a-
bundant, white, rather coarse hairs,
the longest of which are $\frac{1}{5}$ to $\frac{1}{4}$ ~~the~~ its
length; upper palea equal or even
slightly exceeding the lower, narrow,
acute, roughish on the two nerves
which terminate above in two minute
setose teeth; rudiment plumose, very
minute and with its hairs not ex-
ceeding the hairs at base; stamens
grain - ^{scales} as long as the ^{ovary} ^{styles} upper pal-
at, embryo conspicuous, occupying
 $\frac{1}{5}$ its length. May.

Yreka, E. L. Green, No 760.

The specimens being all in ripe fruit
the stamens etc. remain to be described.
The appearance is so much that of
Nardus that one familiar with that
grass would refer it to that at once.
It apparently has a very short career
as in May the grain was ripe and
the lower sheaths and leaves withered;
all parts of the plant in healthy con-
dition are dark purple and probably
the ^{other} ~~same~~ were so. In only the larger speci-
mens is the spike curved at the a-
pex and only such have flowers in
pairs. The portion of rachis opposite
the excavations is sculptured, so to
speak, with lines near the mar-
gins, and the withered portion

below each spikelet, is marked by two depressions. The marking on the glumes, in small light colored dots, is perhaps too minute to be given as a character, as it requires a strong magnifier; the dots are best seen by transmitted light and are nearly in two parallel lines. To make out the rudiment requires some patient manipulation and ^{it} may at first escape detection; the hairs of the rudiment are fairly abundant and about as long as itself, the whole together measuring but $\frac{2}{100}$ of an inch! The grain is about $\frac{10}{100}$ of an inch long and $\frac{2}{100}$ thick, the conspicuous scutellum $\frac{3}{100}$ inch long.

Notes on *Gramineae*

Described by S. B. Buckley in The Proceedings of
the Academy of Natural Sciences of Philadelphia
1862 - pp. 88 - 100 -

Notes made from the original specimens, with
Buckley's labels, forwarded from the Academics
Herbarium by E. Durand -

A copy sent to Doct. Gray with the specimens -

Leaving Smith
July 12 - 1862 -

Notes on Buckley's Grasses.

Polypogon alopecuroides Buckl. - I hardly know what to say to this - I guess it to be a state of Agrostis exarata, Trin. The var β . Hook. Fl. Bor. Am. or near it.

Vilfa agrostidea Buckl. Its specimen furnished with this name - A specimen of Sporobolus cryptanrus was labelled "Agrostis, northern Texas, Buckley" is perhaps it.

Sporobolus (Vilfa) angustus is S. Indicus R.Br. - This should be compared with S. tenuispinus Beauv. (Trin. Le. t. 26) if the same the latter is the older name & should be adopted - What a way Buckley has of making Vilfa & Sporobolus reciprocal as genus & subgenus -

Vilfa ~~alta~~ rigida Buckl. is Calamagrostis gigantea Nutt & C. longifolia Hook - You have adopted the latter name in the manual but Nuttall's is prior.

Vilfa (Sporobolus) alta is Eatonia obtusata Gray - The label was marked Eatonian by me a long time ago

Sporobolus (Vilfa) arenaceus is S. asperifolius Nees & Meyen (teste Munro) Buckley described from Wrights 737 without credit.

Wralepsis elongata, Buckl. is Tricuspis trinerviolumis Munro & Ass. - It is near the Mexican Fox. but readily distinguished by its 3-nerved upper glume - It is 2054 of Wrights & 307 of Drummond's Collections

Vilfa (Sporobolus) varians no specimen -

2

Sporobolus (Vilfa) diffusipennis is S. airoides Torr.

Vilfa (Sporobolus) fabiana is S. coromandelianus Kunth,
non Trin. An old & widely diffused species as may be
inferred ~~from~~ ^{for which} the following synonyms, quoted by Munro.
S. commutatus Rth & Trin; S. argutus Rth. S. arkansana Trin;

Vilfa ambigua Steud. - 1972 Wright & 377 Drummond's 2^d Coll
are the same -

Agrostis agnatica Not in the parcel.

Agrostis scalariscula is A. scalaris Willd.

Agrostis albicans is A. exarata Trin; a slender form of
this very variable species which was labelled A. Oregonensis
by Willd.

Muhlenbergia arenicola is M. gracillima Torr. in Bot.
Whipp. It is 735 Wright & 768 & 769 Steud. n. Mex. Coll.

M. monticola ^{whelenbergii} is M. sylvatica Torr. var. "ligulis elongatis
foliisque angustis" Munro Ann. - 731 Wright.

M. pauciflora seems to be a form of M. Willdenowii Trin.

Muhlenbergia Texana. There is no specimen so labelled but
there is one marked Agrostis barbata Buckl. which from
the description is the plant intended & is Sporobolus
truncatulus Rth in which the lower palea often
bears a slight mucro or awn.

Eulamagrostis Oregonensis

Eulamagrostis rubescens

Eulamagrostis albicans.

You have so much better material than I have for making out these that I leave them for you -

Aristida curtisetia, is a depauperate state of A. purpurea Nutt. - Similar specimens were collected on Fitzgerald's Expedition.

Aristida pauciflora, is A. oligantha Michx., of which I have specimens collected by Buckley in Illinois.

Aristida filipendula, is A. purpurea Nutt., a form near the var. Berlandieri Trin. - This grass is so variable that it is almost impossible to define the same characterize the varieties. Each new locality would afford a Buckleyan species.

Bouteloua pumila is B. polystachya, Torr. in Willkinson's Rep. (Pacific R.R. Survey vol 5) t. 10. A small flowered form agreeing with the figure above quoted.

Bouteloua brevifolia is B. eriopoda, Torr. The plant has Fendler's Herbar. no 946. which in Herb. Torr. is Pleuraphis while B. eriopoda is 950 -

Wrolepis (Frieschia) brevispidata is Leptochloa dubia Nees, HBK. t. 694 - It is 767

Agrost. Bras. p. 433; Chloris dubia

Wright's Coll.

Wrolepis (Frieschia) pilosa is Frieschia acuminata Munro in Herb. ~~Hort.~~ Benth. Described from Wright 781 without credit. Mixed with this is a specimen of T. acuminata Thunb.

4

(*Tridion arenacea* H. B. K. t 48) which Buckley fortunately did not see or he should have had another name -
(*Tricuspis*)

Urulepis pinnoides is *Sclerochloa californica* Munro in Benth. Plant. Hartney. This is taken from Fendler 932 & is consequently *Eragrostis Fendleriana* Steud. Syn. Plant. Glau 1. p. 278 -

Urulepis (Tricuspis) densiflora is what I have taken for *Mindrosia stricta* Nutt. of which I have no authentic specimen. Scindheim 737 which I have from you as *Mindrosia stricta* is *Tricuspis allerseni* Munro in Herb. Thurb. Nos 278 & 297 of Munro's 2^d Coll are what I consider to be *M. stricta* if I am right then Buckley's plant would be *Tricuspis stricta*.

Urulepis (Tricuspis) composita - I labelled these specimens some years ago *Leptochloa fascicularis* Gray & see no reason to change it. The specimens were collected in New Mexico by Dr. Woodhouse & are the large form common in that region - "Leaves at the joints of the culms without sheaths and stems" Oh S. B. Buckley!

Urulepis (Tricuspis) pilosa (Nis) is *Tricuspis nuttiana* Torr in Botany of Whipp. Rep. p. 156. It is a large form with minute sheaths and Wright's collection without credit, as usual. The original specimens from which Torrey's description was drawn are smooth & not well developed. ~~A minute Munro's~~ The lower palea often bears a minute awn. There seems to be some confusion in Wright's numbers. I have it from Torrey as 180-291-779 & 2046. In the Smithsonian Herb it is 2056 & Munro quotes 780 for the same. I have also 2046 also as

5-

an Eragrostis - Buckley made so many new species that he did not have names to go round so "pilosa" has to serve twice -

Pleuraphis nutica. I think this may be a good species. I have Fendler 946, labelled P. fumescens by Torrey. This differs in the glumes of the central spikelets which are cuneate-obovate, 5-7 nerved and do not enclose the florets but form a sort of involucre as in Elymus. The glumes of the central spikelets 2-cleft, 5-nerved, the nerves confluent below, the ^{prolonged as an awn} ~~midrib~~ shorter than the laciniate-fringed laciniae; lower portion of perfect floret mucronate.

Glyceria bulbosa, A diminutive sterile culm and two detached spikelets (labelled by Nuttall Bromus nuttians) are the materials upon which Buckley ventures to describe a species. When I went over the grasses in Herb. Acad. I took this fragment to belong to what I had called G. bulbosa in Torr. Bot. Sept. Exped. & so labelled it. Now upon examining it as well as I can without breaking up a spikelet I think it belongs to Melica pumila Nutt & G. bulbosa, Hook in Gay's (Oregon?) Plants - (I sent you a note on that species winter before last - please compare) The florets in this are more pointed but the glumes have the united veins of that species. I can't quite satisfy myself about it.

Glyceria leptostachya. This is in the same sheet with this G. microtheca, both names being stolen from Nuttall, I cannot see any marked difference

between them, they are very near G. pallida Trin⁶
except that the palea lower palea is not distinctly
toothed, and may be G. pauciflora Pers. The descr.
of which is very meager.

Glyceria stricta Is what seems to be an abnormal
specimen of Vilfa aspera Beauv. In the lower part
of the panicle the spikelets are 1-flowered while above
there are several florets in each spikelet. The paleae
of which show a tendency to become leaf-like, a
disposition which is more marked in some of Drum-
mond's specimens, which I suppose are V. Drummondii
Trin.

Glyceria microtheca V. Supra. G. leptostachya

Glyceria montana, is Poa airoides Nutt Gen. Poa

Nuttalliana Raven & Schult. Festuca? Nuttalliana Rth.

This old plant is described as a new species Nutt.
withstanding Buckley had a part of the Lycopodium on
the label before him. In labelling Engelmann's Vilfa
grasses I gave the specific name Nuttalliana
as airoides had been taken up by Steudel. But I
overlooked the note on p 426 Steud. stating that he had
mistaken the genus. As the name airoides is uncer-
tain & is the oldest it may as well stand.

Poa lupiflora Is not this your P. alberta? I don't know
most species for certain - Poa are tedious. Name
stolen.

Poa tenuifolia, Nuttall's name for one of those
troublesome & best Miss which you can better make out.

7

Poa densiflora, is P. arachnifera var. β. Torr in Munro's
Rep. p. 301. The ~~copious~~ arachnoid wool to abundant
in the specimens from which the species was descri-
bed is nearly wanting in these ~~specimens~~. Specimens
in the same set vary greatly in this respect.

Eragrostis diffusa, is E. Purshii Bernh. It is a
wonder that Buckley was contented with one species
from this set - I have marked a specimen which
is like one sent to Munro (2046 Wright in some herb.)
who returned the following note "E. delicatula Fris.
Identical with specimens from Buenos Ayres. I think
it may be Poa tenella Pursh; P. Linkii Rth and
therefore may be a state of E. Purshii, as you suspect.
In some respects I find Eragrostis more liable to variety
than any other genus." In Herb. Torr. & Smithsonian. I
find 2046 attached to E. delicatula, E. pilifera &
Franseria nutans -

Eragrostis curtispedunculata (labelled brevipedicellata) I
have nothing in herb to match this but think I have
seen it among your S. American specimens.

Eragrostis sessilis is Leptochloa rigida Munro in
Herb. Trin. Coll. Dubl. and as far as I know unpub-
lished. It is 20766 Wright. (+ 2091 in Herb. Torr.)

Festuca gracilentia is, I think, a very young &
attenuate F. microstachys Nutt.

Festuca reflexa, is F. microstachys Nutt. var. Freryana Torr. in Whipp. p. 156. This is just the plant noticed by Torrey who I think correctly refers it to the multi-form F. microstachys. Name stolen from Nuttall.

Festuca pusilla, I hardly know what to call it unless it is a form of F. rugosa.

Bromus breviaristatus, as I had already labelled it. It is B. and so called it in Torr. Bot. Expt. Exped. It is Ceratochloa breviaristata Hook. If Ceratochloa is reduced to a synonym of Bromus this name will have to stand.

Bromus viridis is Ceratochloa grandiflora Hook. In Torr. Bot. Expt. Exped. I called it B. Hookerianus as the specific name was taken up - The synonymy is on the label but Buckley is above synonyms.

Bromus setaceus is B. sterilis L. with rays of the panicle more compound than in the N.Y. specimens.

Uniola (Brizopyrum) flexuosa is a slender form of Brizopyrum spicatum Hook.

Elymus interruptus. The Texan species are very troublesome - I have a set of regular puzzles. I wish you would try what you can make of this. It seems to me to be a smooth & drawn out E.

Canadensis - Cf. 571 Fendl.

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Elymus triticoides very near 2072 Wright, which Munro says is a form of E. condensatus Nees.

Elymus glaucus I once labelled this E. hirsutus L. and still think it is so but I have no authentic specimens for comparison.

Fisetum glabrum, is Ariza dunthovoides Trin
Deschampsia dunthovoides Munro in Bent's Plant
Hortney. = 2027 Hartney Calif Coll.

Fisetum interruptum is F. elongatum H. B. K.
occurs in Santhemia & Wright's earlier collections

Fisetum canescens, I labelled this F. cernuum Trin?
when I went over the Academy Grasses. I have
no better materials now for a satisfactory determination.
I think you have identified F. cernuum among some
of the Japanese grasses.

Neurochloa occidentalis is H. brevis Raven & Sch.